AMENDED CLAIMS

1. (currently amended) An atrial-arterial shunt for pump-assisted myocardial revascularization of a patient without cardiopulmonary bypass comprising:

a. a section of translucent tubing for the atrial-arterial shunt, wherein the tubing has first and second ends and an interior; and

b. first and second cannula adapters attached to the first and second ends of the tubing, respectively, each of said cannula adapters comprising:

i. a body having a passageway and first and second ends, wherein the first end of the cannula adapter body is attached to the section of tubing such that the cannula adapter passageway is in fluid communication with the interior of the tubing, and wherein the second end of said cannula adapter body is adapted for attachment to a cannula; and

ii. a vent extending through the cannula adapter body from the passageway through to an exterior of the cannula adapter body, wherein the vent includes a sealing means for selectively opening and closing the vent for priming the shunt with blood flow from the patient to remove [[by removing]] air from the shunt, wherein the sealing means comprises a cap removably attached to the vent of each cannula adapter for selectively opening and closing the vent for priming the vent with the blood flow from the patient.

2. (cancelled) The shunt of Claim 1 wherein the sealing means comprises a cap removably attached to the vent of each cannula adapter for selectively opening and closing the vent for priming purposes.

3. (original) The shunt of Claim 1 wherein the section of tubing has a length of no more than two meters, to reduce the amount of blood required to fill the shunt for use in pump-assisted myocardial revascularization.

4. (currently amended) A system for pump-assisted myocardial revascularization without cardiopulmonary bypass comprising:

a. a sealed, openable container having a sterile interior; and

b. a first sterile atrial-arterial shunt, for pump-assisted myocardial revascularization without cardiopulmonary bypass, sealed inside the container and comprising:

i. a section of translucent tubing having first and second ends and an interior; and

ii. first and second cannula adapters attached to the first and second ends of the tubing, respectively, each of said cannula adapters comprising:

(a.) a body having a passageway and first and second ends, wherein the first end of the cannula adapter body is attached to the section of tubing such that the cannula adapter passageway is in fluid communication with the interior of the tubing, and wherein the second end of the cannula adapter body is adapted for attachment to a cannula;

(b.) a vent extending through the cannula adapter body from the passageway through to an exterior of the cannula adapter body, wherein the vent includes a sealing means for selectively opening and closing the vent for priming the shunt <u>with the patient's own blood to remove</u> [[by removing]] air from the shunt, wherein the sealing means comprises two caps removably attached to the vents of the cannula adapters for selectively opening and closing the vents for priming purposes and further comprises two clamps removably attached to [[the]] <u>respective</u> cannulae to block a patient's blood flow until priming as desired; and

iii. a peristaltic pump connected to the shunt tubing.

5. (cancelled) The system of Claim 4 wherein the sealing means comprises two caps respectively removably attached to the vents of the cannula adapters for selectively opening and closing the vents for priming purposes.

6. (previously presented) The system of Claim 4 wherein the peristaltic pump is one of a medical facility's existing peristaltic pumps from a cardiopulmonary bypass machine.

7. (original) The system of Claim 6 wherein the shunt's section of tubing has length of no more than two meters, to reduce the amount of blood required to fill the shunt for use in pump-assisted myocardial revascularization.

8. (original) The system of Claim 4 further comprising a second sterile atrial-arterial shunt sealed in the container and generally identical to the first shunt.

9. (original) The system of Claim 8 wherein the atrial-arterial shunts further comprise a plurality of caps respectively removably attached to the cannula adapter vents for selectively opening and closing the vents for priming purposes.

10. (original) The system of Claim 8 wherein the sections of tubing of each shunt have a length of no more than two meters, to reduce the amount of blood required to fill the shunts for use in pump-assisted myocardial revascularization.

11. (original) The system of Claim 8 further comprising a peristaltic pump configured to accommodate the shunt tubing for pumping purposes, wherein the peristaltic pump is one of a medical facility's existing peristaltic pumps from a cardiopulmonary bypass machine.

12. (original) The system of Claim 11 wherein the sections of tubing of each shunt have a length of no more than two meters, to reduce the amount of blood required to fill the shunts for use in pump-assisted myocardial revascularization.

13. (currently amended) A method comprising the steps of:

a. surgically attaching a first cannula to the aorta of a patient's heart;

b. surgically attaching a second cannula to the left atrium of the patient's heart;

c. interconnecting the first and second cannulae with a first sterile atrial-arterial shunt, wherein:

i. the shunt comprises a section of translucent tubing terminated at a first end by a first cannula adapter and at a second end by a second cannula adapter;

ii. each cannula adapter has a vent, said vent being sealable for selectively opening and closing the vent for priming purposes; and

iii. the first and second cannula adapters are respectively connected to the first and second cannulae;

d. priming the first shunt with the patient's own blood to remove air;

e. inserting the first shunt tubing into a first peristaltic pump, wherein the first peristaltic pump is one of a medical facility's existing peristaltic pumps from a cardiopulmonary bypass machine; and

f. activating the first peristaltic pump to pump blood through the shunt and in parallel to the patient's heart's pumping action;

g. whereby steps a. through f. perform pump-assisted myocardial revascularization without cardiopulmonary bypass.

14. (original) The method of Claim 13 wherein the step of priming the shunt to remove air comprises the sub-steps of: opening the vent on the first cannula adapter; allowing blood to flow through the second cannula from the left atrium through the tubing to the first cannula adapter, wherein the flowing blood forces the air out of the tubing and through the vent on the first cannula adapter; and closing the vent on the first cannula adapter.

15. (original) The method of Claim 13 wherein: the section of translucent tubing is no longer than two meters, to reduce the amount of blood required to fill the shunt for use in pump-assisted myocardial revascularization; and the method further comprises the step, prior to step e), of moving the first peristaltic pump within one meter of the patient.

16. (currently amended) The method of Claim 13 further comprising the steps of:

a. surgically attaching a third cannula to the pulmonary artery of the patient's heart;

b. surgically attaching a fourth cannula to the right atrium of the patient's heart;

c. interconnecting the third and fourth cannulae with a second sterile atrial-arterial shunt generally identical to the first shunt;

d. priming the second shunt with the patient's own blood to remove air;

e. inserting the second shunt's tubing into a selected one of the first peristaltic pump or a second peristaltic pump that is also one of a medical facility's existing peristaltic pumps from a cardiopulmonary bypass machine; and

f. activating the selected one of the first peristaltic pump or the second peristaltic pump to pump blood through the second shunt and in parallel to the pumping action of the patient's heart.

17. (original) The method of Claim 16 wherein: the section of translucent tubing of each shunt is no longer than two meters, to reduce the amount of blood required to fill the shunts for use in pump-assisted myocardial revascularization; and the method further comprises the step of moving the peristaltic pump(s) within one meter of the patient.

18. (cancelled) A method of pump-assisted myocardial revascularization without cardiopulmonary bypass comprising the steps of:

a. surgically attaching a first cannula to a first location on a patient's heart;

b. surgically attaching a second cannula to a second location on the patient's heart;

c. interconnecting the first and second cannulae with a sterile atrial-arterial shunt, wherein:

i. the shunt comprises a section of translucent tubing terminated at a first end by a first cannula adapter and at a second end by a second cannula adapter;

ii. each cannula adapter has a vent, said vent being sealable for selectively opening and closing the vent for priming purposes; and

iii. the first and second cannula adapters are respectively connected to the first and second cannulae;

d. priming the shunt to remove air;

e. inserting the shunt tubing into a peristaltic pump, wherein the peristaltic pump is one of a medical facility's existing peristaltic pumps from a cardiopulmonary bypass machine; and

f. activating the peristaltic pump to pump blood through the shunt; wherein:

g. the first and second locations on the patient's heart are chosen so that when the peristaltic pump is activated it acts to operably pump blood in parallel to the pumping action of the patient's heart.

19. (cancelled) The method of Claim 18 wherein: the section of translucent tubing has a length of no more than two meters, to reduce the amount of blood required to fill the shunt for use in pump-assisted myocardial revascularization; and the method further comprises the step, prior to step e), of moving the peristaltic pump within one meter of the patient.

20. (previously presented) A method comprising the steps of:

a. surgically attaching a first cannula to the aorta of a patient's heart;

b. surgically attaching a second cannula to the left atrium of the patient's heart;

c. interconnecting the first and second cannulae with a first sterile atrial-arterial shunt, wherein:

i. the shunt comprises a section of translucent tubing terminated at a first end by a first cannula adapter and at a second end by a second cannula adapter;

ii. each cannula adapter has a vent, said vent being sealable for selectively opening and closing the vent for priming purposes; and

iii. the first and second cannula adapters are respectively connected to the first and second cannulae;

d. priming the first shunt with the patient's own blood to remove air;

e. inserting the first shunt tubing into a peristaltic pump; and

f. activating the peristaltic pump to pump blood through the shunt and in parallel to the patient's heart's pumping action;

g. limiting the length of the section of translucent tubing to no more than two meters to reduce the amount of the patient's blood required to fill the shunt for use in pump-assisted myocardial revascularization; and

h. prior to step f. moving the peristaltic pump within one meter of the patient;

i. whereby steps a. through h. perform pump-assisted myocardial revascularization without cardiopulmonary bypass.